

Application No. 08/480,461  
Communication dated October 31, 2006

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OCT 31 2006

**Listing of Claims:**

Claims 1-89. (cancelled)

90. (withdrawn) A depth limiting device for a surgical instrument having a shaft and a grooved portion on the shaft, the surgical instrument being operated through a guide having a passageway for receiving the shaft, said depth limiting device comprising:

a collar for limiting the depth of passage of the shaft of the surgical instrument through the passageway of the guide engaging the shaft, said collar having a diameter larger than the diameter of the shaft and larger than the passageway; and

a pair of diametrically opposed flange members pivotably mounted to said collar capable of engaging the grooved portion, said flanged members being spring biased to engage the grooved portion when biased, and disengage the grooved portion when unbiased.

Claims 91-94. (cancelled)

95. (previously presented) A spinal distractor for use in spinal fusion surgery within an adult human thoracic and lumbar spine for positioning adjacent vertebral bodies of two adjacent vertebrae adjacent a disc space in selected relationship to each other, said spinal distractor comprising:

a body having a height adapted to be greater than the height of the disc space; and

at least one disc penetrating extension extending from said body adapted to be inserted into the lateral aspect of the disc space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extension having a portion adapted to bear against each of the adjacent endplates of the two adjacent vertebral bodies, said portion of said disc penetrating extension having a height less than the height of said body and a length that is less than the transverse width of the vertebral bodies between which said disc penetrating extension is adapted to be inserted, said length

Application No. 08/480,461  
Communication dated October 31, 2006

being greater than the depth of the spinal disc intermediate the two adjacent vertebral bodies between which said disc penetrating extension is adapted to be inserted.

96. (previously presented) The spinal distractor of claim 95, further comprising means for limiting the penetration of said disc penetrating extension into the disc space.
97. (previously presented) The spinal distractor of claim 96, wherein said limiting means comprises a shoulder on said body at the juncture of said disc penetrating extension and said body for preventing said body from entering the disc space.
98. (previously presented) The spinal distractor of claim 95, wherein said disc penetrating extension has a tapered front end to facilitate insertion of said disc penetrating extension into the disc space.
99. (previously presented) The spinal distractor of claim 95, wherein said body has a longitudinal passageway adapted to receive an alignment pin.
100. (previously presented) The spinal distractor of claim 95, wherein said body has means for engaging an extraction device for extracting said disc penetrating extension from the disc space.
101. (previously presented) The spinal distractor of claims 100, wherein said engaging means includes a mating member for mating with an extraction device.
102. (previously presented) An apparatus for use in spinal fusion surgery, said apparatus comprising:

a spinal distractor for positioning adjacent vertebral bodies of two adjacent vertebrae adjacent a disc space in selected relationship to each other, said spinal distractor comprising:

a body having a height greater than the height of the disc space; and

at least one disc penetrating extension extending from said body for insertion into the lateral aspect of the disc

Application No. 08/480,461  
Communication dated October 31, 2006

space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extension having a portion for bearing against each of the adjacent endplates of the two adjacent vertebral bodies, said portion of said disc penetrating extension having a height less than the height of said body and a length that is less than the transverse width of the vertebral bodies, said length being greater than the depth of the spinal disc intermediate the two adjacent vertebral bodies between which said disc penetrating extension is inserted; and

a guard having an opening for providing protected access to the disc space and the adjacent vertebral bodies, said spinal distractor passing through said opening.

103. (previously presented) The spinal distractor and guard combination of claim 102, wherein said guard maintains said spinal distractor in coaxial alignment with the longitudinal axis of the opening.
104. (previously presented) The spinal distractor and guard combination of claim 103, further in combination with a spinal implant having upper and lower surfaces for bearing upon and supporting each of the two adjacent vertebral bodies, said spinal implant passing through said opening of said guard.
105. (previously presented) The spinal distractor, guard, and spinal implant combination of claim 104, wherein said guard maintains said spinal implant in coaxial alignment with the longitudinal axis of the opening of said guard.
106. (previously presented) The spinal distractor and guard combination of claim 102, further in combination with a bone removal device having a portion sized for passage through said opening of said guard for forming through said guard an implantation space across the disc space.
107. (previously presented) The spinal distractor, guard, and bone removal device combination of claim 106, further in combination with an implant driver having

Application No. 08/480,461  
Communication dated October 31, 2006

RECEIVED  
CENTRAL FAX CENTER

OCT 31 2006

means for engaging an implant, said implant driver having a portion sized for passage through said opening of said guard for passing an implant through said guard.

108. (previously presented) An apparatus for use in human spinal surgery across the height of a disc space between the vertebral bodies of two adjacent vertebrae, said apparatus comprising:

a guard member having a height adapted to be greater than the height of the disc space and an opening for providing protected access to the lateral aspect of the disc space and the adjacent vertebral bodies from a position anterior to the transverse processes of the adjacent vertebrae, said opening having a maximum height; and

at least one disc penetrating extension extending from said guard member adapted to be inserted into the lateral aspect of the disc space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extension having a portion adapted to bear against each of the adjacent endplates of the adjacent vertebral bodies, said portion of said disc penetrating extension having a height less than the height of said guard member and a length that is less than the transverse width of the vertebral bodies between which said disc penetrating extension is adapted to be inserted, said length being greater than the depth of the disc space in which said length is adapted to be inserted, said portion of said disc penetrating extension having an upper surface adapted to contact one of the adjacent endplates of the adjacent vertebral bodies and a lower surface adapted to contact the other of the adjacent endplates of the adjacent vertebral bodies at more than one point through the disc space.

109. (previously presented) The apparatus of claim 108, wherein said upper and lower surfaces are at least in part parallel to each other.
110. (previously presented) The apparatus of claim 108, wherein said guard member has an external surface at its distal end and said disc penetrating extension is at

Application No. 08/480,461  
Communication dated October 31, 2006

least in part coextensive with said external surface.

111. (previously presented) The apparatus of claim 108, further comprising a second disc penetrating extension extending from said guard member for insertion into the disc space and for bearing against the endplates of the adjacent vertebral bodies.
112. (previously presented) The apparatus of claim 111, wherein said disc penetrating extensions are diametrically opposed to each other.
113. (previously presented) The apparatus of claim 111, wherein said disc penetrating extensions have the same height.
114. (previously presented) An apparatus for use in human spinal surgery across a disc space between the vertebral bodies of two adjacent vertebrae, comprising:
  - a guard member having a height greater than the height of the disc space and an opening for providing protected access to the lateral aspect of the disc space and the adjacent vertebral bodies from a position anterior to the transverse processes of the adjacent vertebrae, said opening having a maximum height; and
  - at least two disc penetrating extensions extending from said guard member for insertion into the lateral aspect of the disc space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extensions having a portion for bearing against each of the adjacent endplates of the adjacent vertebral bodies, said portion of said disc penetrating extensions having a height less than the height of said guard member and a length that is less than the transverse width of the vertebral bodies, said length being greater than the depth of the disc space, said portion of said disc penetrating extensions having an upper surface adapted to contact one of the adjacent endplates of the adjacent vertebral bodies and a lower surface adapted to contact the other of the adjacent endplates of the adjacent vertebral bodies at more than one point through the disc space, said disc penetrating extensions being of a different height.

Application No. 08/480,461  
Communication dated October 31, 2006

115. (previously presented) An apparatus for use in human spinal surgery across a disc space between the vertebral bodies of two adjacent vertebrae, comprising:  
a guard member having a height greater than the height of the disc space and an opening for providing protected access to the lateral aspect of the disc space and the adjacent vertebral bodies from a position anterior to the transverse processes of the adjacent vertebrae, said opening having a maximum height; and  
at least two disc penetrating extensions extending from said guard member for insertion into the lateral aspect of the disc space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extensions having a portion for bearing against each of the adjacent endplates of the adjacent vertebral bodies, said portion of said disc penetrating extensions having a height less than the height of said guard member and a length that is less than the transverse width of the vertebral bodies, said length being greater than the depth of the disc space, said portion of said disc penetrating extensions having an upper surface adapted to contact one of the adjacent endplates of the adjacent vertebral bodies and a lower surface adapted to contact the other of the adjacent endplates of the adjacent vertebral bodies at more than one point through the disc space, said disc penetrating extensions being of a different length.
116. (previously presented) The apparatus of claim 108, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.
117. (previously presented) The apparatus of claim 108, wherein said guard member conforms at least in part to the exterior surface of the vertebral bodies of the lateral aspect of the adjacent vertebral bodies.
118. (previously presented) The apparatus of claim 117, wherein said upper and lower surfaces are at least in part parallel to each other.

Application No. 08/480,461  
Communication dated October 31, 2006

119. (previously presented) The apparatus of claim 117, further comprising a second disc penetrating extension extending from said guard member for insertion into the disc space and for bearing against the endplates of the adjacent vertebral bodies.
120. (previously presented) The apparatus of claim 119, wherein said disc penetrating extensions are diametrically opposed to each other.
121. (previously presented) The apparatus of claim 119, wherein said disc penetrating extensions have the same height.
122. (previously presented) The apparatus of claim 119, wherein said disc penetrating extensions are of a different height.
123. (previously presented) The apparatus of claim 119, wherein said disc penetrating extensions are of a different length.
124. (previously presented) The apparatus of claim 117, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.
125. (previously presented) The apparatus of claim 108, further comprising means for penetrating the two adjacent vertebral bodies.
126. (previously presented) The apparatus of claim 125, wherein said penetrating means includes teeth for insertion into the spine.
127. (previously presented) The apparatus of claim 125, wherein said penetrating means includes at least one prong for insertion into the spine.
128. (previously presented) The apparatus of claim 108, further comprising a removable inner sleeve.
129. (previously presented) The apparatus of claim 108, further comprising means for limiting the depth of penetration of said disc penetrating extension into the disc space.
130. (previously presented) The apparatus of claim 108, wherein said guard member comprises a hollow tube.

Application No. 08/480,461  
Communication dated October 31, 2006

131. (previously presented) An apparatus for use in human spinal surgery across a disc space between the vertebral bodies of two adjacent vertebrae, comprising:  
a guard member including a hollow tube having a height greater than the height of the disc space and an opening for providing protected access to the lateral aspect of the disc space and the adjacent vertebral bodies from a position anterior to the transverse processes of the adjacent vertebrae, said opening having a maximum height, said hollow tube having a detachable distal end portion; and  
at least one disc penetrating extension extending from said guard member for insertion into the lateral aspect of the disc space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extension having a portion for bearing against each of the adjacent endplates of the adjacent vertebral bodies, said portion of said disc penetrating extension having a height less than the height of said guard member and a length that is less than the transverse width of the vertebral bodies, said length being greater than the depth of the disc space, said portion of said disc penetrating extension having an upper surface adapted to contact one of the adjacent endplates of the adjacent vertebral bodies and a lower surface adapted to contact the other of the adjacent endplates of the adjacent vertebral bodies at more than one point through the disc space.
132. (previously presented) The apparatus of claim 108, wherein said disc penetrating extension has a tapered leading end to facilitate placement of said disc penetrating extension into the disc space.
133. (previously presented) The apparatus of claim 108 in combination with a bone removal device having a portion sized for passage through said opening of said guard for forming through said opening of said guard member an implantation space across the disc space.
134. (previously presented) The apparatus of claim 133 in combination with an implant driver sized in part for passage through said opening of said guard for



Application No. 08/480,461  
Communication dated October 31, 2006

passing an implant through said guard member and into the disc space.

135. (previously presented) The apparatus of claim 108 in combination with a spinal distractor sized for passage through said guard member, said spinal distractor having a body and a disc penetrating member extending from said body and into the disc space between the two adjacent vertebral bodies for bearing against the adjacent endplates of the two adjacent vertebral bodies.
136. (previously presented) The apparatus of claim 135, wherein said disc penetrating member has a tapered leading end to facilitate placement of said disc penetrating member into the disc space.
137. (previously presented) The apparatus of claim 108 in combination with a tap for insertion through said guard member for tapping the two adjacent vertebral bodies.
138. (previously presented) An apparatus for use in human spinal surgery across a disc space between the vertebral bodies of two adjacent vertebrae, comprising:  
a guard member having a height greater than the height of the disc space and an opening for providing protected access to the lateral aspect of the disc space and the adjacent vertebral bodies from a position anterior to the transverse processes of the adjacent vertebrae, said opening having a maximum height;  
at least one disc penetrating extension extending from said guard member for insertion into the lateral aspect of the disc space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extension having a portion for bearing against each of the adjacent endplates of the adjacent vertebral bodies, said portion of said disc penetrating extension having a height less than the height of said guard member and a length that is less than the transverse width of the vertebral bodies, said length being greater than the depth of the disc space, said portion of said disc penetrating extension having an upper surface adapted to contact one of the adjacent endplates of the adjacent vertebral bodies and a lower surface adapted to contact the other of the

Application No. 08/480,461  
Communication dated October 31, 2006

adjacent endplates of the adjacent vertebral bodies at more than one point through the disc space; and

an extractor coupler having one end adapted to couple with said guard member and an opposite end adapted to couple with an extraction device.

139. (previously presented) An apparatus for use in human interbody spinal surgery across a disc space between the vertebral bodies of two adjacent vertebrae, comprising:

a guard member having a proximal end, a distal end, a height greater than the height of the disc space, and at least one passageway adapted to permit the passage of a bone removal device therethrough for providing protected access to the disc space and the adjacent vertebral bodies, said passage having a maximum height; and

at least one disc penetrating extension extending from said distal end of said guard member for insertion into the disc space, said disc penetrating extension being separable from said proximal end of said guard, said disc penetrating extension having a portion for bearing against each of the adjacent endplates of the adjacent vertebral bodies, said portion of said disc penetrating extension having an upper surface adapted to contact one of the adjacent endplates of the adjacent vertebral bodies and a lower surface adapted to contact the other of the adjacent endplates of the adjacent vertebral bodies intermediate the two adjacent vertebral bodies between which said disc penetrating extension is inserted.

140. (withdrawn) A collar for limiting the insertion depth of a surgical instrument having a shaft with a grooved portion, the surgical instrument being operated through a guide having a passageway for receiving the shaft, said collar comprising: a pair of diametrically opposed locking members for slidably engaging along the grooved portion of the shaft, said locking member being sized to prevent passage through the passageway of the guide, said locking members engaging the grooved portion when locked, said locking members disengaging the grooved portion when unlocked

Application No. 08/480,461  
Communication dated October 31, 2006

so as to be slidable along the grooved portion of the shaft.

141. (previously presented) The apparatus of claim 114, wherein said upper and lower surfaces are at least in part parallel to each other.
142. (previously presented) The apparatus of claim 114, wherein said guard member has an external surface at its distal end and said disc penetrating extensions are at least in part coextensive with said external surface.
143. (previously presented) The apparatus of claim 114, wherein said disc penetrating extensions are diametrically opposed to each other.
144. (previously presented) The apparatus of claim 114, wherein said disc penetrating extensions are of a different length.
145. (previously presented) The apparatus of claim 114, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.
146. (previously presented) The apparatus of claim 114, wherein said guard member conforms at least in part to the exterior surface of the vertebral bodies of the lateral aspect of the adjacent vertebral bodies.
147. (previously presented) The apparatus of claim 114, further comprising means for penetrating the two adjacent vertebral bodies.
148. (previously presented) The apparatus of claim 147, wherein said penetrating means includes teeth for insertion into the spine.
149. (previously presented) The apparatus of claim 147, wherein said penetrating means includes at least one prong for insertion into the spine.
150. (previously presented) The apparatus of claim 114, further comprising a removable inner sleeve.
151. (previously presented) The apparatus of claim 114, further comprising means for limiting the depth of penetration of said disc penetrating extensions into the disc space.

Application No. 08/480,461  
Communication dated October 31, 2006

152. (previously presented) The apparatus of claim 114, wherein said guard member comprises a hollow tube.
153. (previously presented) The apparatus of claim 152, wherein said hollow tube has a detachable distal end portion.
154. (previously presented) The apparatus of claim 114, wherein said disc penetrating extensions have a tapered leading end to facilitate placement of said disc penetrating extensions into the disc space.
155. (previously presented) The apparatus of claim 114 in combination with a bone removal device having a portion sized for passage through said opening of said guard for forming through said opening of said guard member an implantation space across the disc space.
156. (previously presented) The apparatus of claim 114 in combination with an implant driver sized in part for passage through said opening of said guard for passing an implant through said guard member and into the disc space.
157. (previously presented) The apparatus of claim 114 in combination with a spinal distractor sized for passage through said guard member, said spinal distractor having a body and a disc penetrating member extending from said body and into the disc space between the two adjacent vertebral bodies for bearing against the adjacent endplates of the two adjacent vertebral bodies.
158. (previously presented) The apparatus of claim 157, wherein said disc penetrating member has a tapered leading end to facilitate placement of said disc penetrating member into the disc space.
159. (previously presented) The apparatus of claim 114 in combination with a tap for insertion through said guard member for tapping the two adjacent vertebral bodies.
160. (previously presented) The apparatus of claim 114, further comprising an extractor coupler having one end adapted to couple with said guard member and an opposite end adapted to couple with an extraction device.

Application No. 08/480,461  
Communication dated October 31, 2006

161. (previously presented) The apparatus of claim 115, wherein said upper and lower surfaces are at least in part parallel to each other.
162. (previously presented) The apparatus of claim 115, wherein said guard member has an external surface at its distal end and said disc penetrating extensions are at least in part coextensive with said external surface.
163. (previously presented) The apparatus of claim 114, wherein said disc penetrating extensions have the same height.
164. (previously presented) The apparatus of claim 115, wherein said disc penetrating extensions are diametrically opposed to each other.
165. (previously presented) The apparatus of claim 115, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.
166. (previously presented) The apparatus of claim 115, wherein said guard member conforms at least in part to the exterior surface of the vertebral bodies of the lateral aspect of the adjacent vertebral bodies.
167. (previously presented) The apparatus of claim 115, further comprising means for penetrating the two adjacent vertebral bodies.
168. (previously presented) The apparatus of claim 167, wherein said penetrating means includes teeth for insertion into the spine.
169. (previously presented) The apparatus of claim 167, wherein said penetrating means includes at least one prong for insertion into the spine.
170. (previously presented) The apparatus of claim 115, further comprising a removable inner sleeve.
171. (previously presented) The apparatus of claim 115, further comprising means for limiting the depth of penetration of said disc penetrating extensions into the disc space.
172. (previously presented) The apparatus of claim 115, wherein said guard member comprises a hollow tube.

Application No. 08/480,461  
Communication dated October 31, 2006

173. (previously presented) The apparatus of claim 172, wherein said hollow tube has a detachable distal end portion.
174. (previously presented) The apparatus of claim 115, wherein said disc penetrating extensions have a tapered leading end to facilitate placement of said disc penetrating extensions into the disc space.
175. (previously presented) The apparatus of claim 115 in combination with a bone removal device having a portion sized for passage through said opening of said guard for forming through said opening of said guard member an implantation space across the disc space.
176. (previously presented) The apparatus of claim 115 in combination with an implant driver sized in part for passage through said opening of said guard for passing an implant through said guard member and into the disc space.
177. (previously presented) The apparatus of claim 115 in combination with a spinal distractor sized for passage through said guard member, said spinal distractor having a body and a disc penetrating member extending from said body and into the disc space between the two adjacent vertebral bodies for bearing against the adjacent endplates of the two adjacent vertebral bodies.
178. (previously presented) The apparatus of claim 177, wherein said disc penetrating member has a tapered leading end to facilitate placement of said disc penetrating member into the disc space.
179. (previously presented) The apparatus of claim 115 in combination with a tap for insertion through said guard member for tapping the two adjacent vertebral bodies.
180. (previously presented) The apparatus of claim 115, further comprising an extractor coupler having one end adapted to couple with said guard member and an opposite end adapted to couple with an extraction device.
181. (previously presented) The apparatus of claim 131, wherein said upper and lower surfaces are at least in part parallel to each other.

Application No. 08/480,461  
Communication dated October 31, 2006

182. (previously presented) The apparatus of claim 131, wherein said guard member has an external surface at its distal end and said disc penetrating extension is at least in part coextensive with said external surface.
183. (previously presented) The apparatus of claim 131, further comprising a second disc penetrating extension extending from said guard member for insertion into the disc space and for bearing against the endplates of the adjacent vertebral bodies.
184. (previously presented) The apparatus of claim 183, wherein said disc penetrating extensions are diametrically opposed to each other.
185. (previously presented) The apparatus of claim 183, wherein said disc penetrating extensions have the same height.
186. (previously presented) The apparatus of claim 183, wherein said disc penetrating extensions are of a different height.
187. (previously presented) The apparatus of claim 183, wherein said disc penetrating extensions are of a different length.
188. (previously presented) The apparatus of claim 131, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.
189. (previously presented) The apparatus of claim 131, wherein said guard member conforms at least in part to the exterior surface of the vertebral bodies of the lateral aspect of the adjacent vertebral bodies.
190. (previously presented) The apparatus of claim 189, wherein said upper and lower surfaces are at least in part parallel to each other.
191. (previously presented) The apparatus of claim 189, further comprising a second disc penetrating extension extending from said guard member for insertion into the disc space and for bearing against the endplates of the adjacent vertebral bodies.

Application No. 08/480,461  
Communication dated October 31, 2006

192. (previously presented) The apparatus of claim 191, wherein said disc penetrating extensions are diametrically opposed to each other.
193. (previously presented) The apparatus of claim 191, wherein said disc penetrating extensions have the same height.
194. (previously presented) The apparatus of claim 191, wherein said disc penetrating extensions are of a different height.
195. (previously presented) The apparatus of claim 191, wherein said disc penetrating extensions are of a different length.
196. (previously presented) The apparatus of claim 189, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.
197. (previously presented) The apparatus of claim 131, further comprising means for penetrating the two adjacent vertebral bodies.
198. (previously presented) The apparatus of claim 197, wherein said penetrating means includes teeth for insertion into the spine.
199. (previously presented) The apparatus of claim 197, wherein said penetrating means includes at least one prong for insertion into the spine.
200. (previously presented) The apparatus of claim 131, further comprising a removable inner sleeve.
201. (previously presented) The apparatus of claim 131, further comprising means for limiting the depth of penetration of said disc penetrating extension into the disc space.
202. (previously presented) The apparatus of claim 131, wherein said disc penetrating extension has a tapered leading end to facilitate placement of said disc penetrating extension into the disc space.
203. (previously presented) The apparatus of claim 131 in combination with a bone removal device having a portion sized for passage through said opening of said guard for forming through said opening of said guard member an implantation



Application No. 08/480,461  
Communication dated October 31, 2006

space across the disc space.

- 204. (previously presented) The apparatus of claim 131 in combination with an implant driver sized in part for passage through said opening of said guard for passing an implant through said guard member and into the disc space.
- 205. (previously presented) The apparatus of claim 131 in combination with a spinal distractor sized for passage through said guard member, said spinal distractor having a body and a disc penetrating member extending from said body and into the disc space between the two adjacent vertebral bodies for bearing against the adjacent endplates of the two adjacent vertebral bodies.
- 206. (previously presented) The apparatus of claim 205, wherein said disc penetrating member has a tapered leading end to facilitate placement of said disc penetrating member into the disc space.
- 207. (previously presented) The apparatus of claim 131 in combination with a tap for insertion through said guard member for tapping the two adjacent vertebral bodies.
- 208. (previously presented) The apparatus of claim 131, further comprising an extractor coupler having one end adapted to couple with said guard member and an opposite end adapted to couple with an extraction device.
- 209. (previously presented) The apparatus of claim 139, wherein said upper and lower surfaces are at least in part parallel to each other.
- 210. (previously presented) The apparatus of claim 139, wherein said guard member has an external surface at its distal end and said disc penetrating extension is at least in part coextensive with said external surface.
- 211. (previously presented) The apparatus of claim 139, further comprising a second disc penetrating extension extending from said guard member for insertion into the disc space and for bearing against the endplates of the adjacent vertebral bodies.
- 212. (previously presented) The apparatus of claim 211, wherein said disc penetrating extensions are diametrically opposed to each other.

Application No. 08/480,461  
Communication dated October 31, 2006

- 213. (previously presented) The apparatus of claim 211, wherein said disc penetrating extensions have the same height.
- 214. (previously presented) The apparatus of claim 211, wherein said disc penetrating extensions are of a different height.
- 215. (previously presented) The apparatus of claim 211, wherein said disc penetrating extensions are of a different length.
- 216. (previously presented) The apparatus of claim 139, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.
- 217. (previously presented) The apparatus of claim 139, wherein said guard member conforms at least in part to the exterior surface of the vertebral bodies of the lateral aspect of the adjacent vertebral bodies.
- 218. (previously presented) The apparatus of claim 217, wherein said upper and lower surfaces are at least in part parallel to each other.
- 219. (previously presented) The apparatus of claim 217, further comprising a second disc penetrating extension extending from said guard member for insertion into the disc space and for bearing against the endplates of the adjacent vertebral bodies.
- 220. (previously presented) The apparatus of claim 219, wherein said disc penetrating extensions are diametrically opposed to each other.
- 221. (previously presented) The apparatus of claim 219, wherein said disc penetrating extensions have the same height.
- 222. (previously presented) The apparatus of claim 219, wherein said disc penetrating extensions are of a different height.
- 223. (previously presented) The apparatus of claim 219, wherein said disc penetrating extensions are of a different length.
- 224. (previously presented) The apparatus of claim 217, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces

Application No. 08/480,461  
Communication dated October 31, 2006

that approximates the height of the normal disc space between the adjacent vertebral bodies.

- 225. (previously presented) The apparatus of claim 139, further comprising means for penetrating the two adjacent vertebral bodies.
- 226. (previously presented) The apparatus of claim 225, wherein said penetrating means includes teeth for insertion into the spine.
- 227. (previously presented) The apparatus of claim 225, wherein said penetrating means includes at least one prong for insertion into the spine.
- 228. (previously presented) The apparatus of claim 139, further comprising means for limiting the depth of penetration of said disc penetrating extension into the disc space.
- 229. (previously presented) The apparatus of claim 139, wherein said disc penetrating extension has a tapered leading end to facilitate placement of said disc penetrating extension into the disc space.
- 230. (previously presented) The apparatus of claim 139 in combination with a bone removal device having a portion sized for passage through said passageway of said guard for forming through said passageway of said guard member an implantation space across the disc space.
- 231. (previously presented) The apparatus of claim 139 in combination with an implant driver sized in part for passage through said passageway of said guard for passing an implant through said guard member and into the disc space.
- 232. (previously presented) The apparatus of claim 139 in combination with a spinal distractor sized for passage through said guard member, said spinal distractor having a body and a disc penetrating member extending from said body and into the disc space between the two adjacent vertebral bodies for bearing against the adjacent endplates of the two adjacent vertebral bodies.
- 233. (previously presented) The apparatus of claim 232, wherein said disc penetrating member has a tapered leading end to facilitate placement of said disc penetrating member into the disc space.

Application No. 08/480,461  
Communication dated October 31, 2006

234. (previously presented) The apparatus of claim 139 in combination with a tap for insertion through said guard member for tapping the two adjacent vertebral bodies.
235. (previously presented) The apparatus of claim 139, further comprising an extractor coupler having one end adapted to couple with said guard member and an opposite end adapted to couple with an extraction device.
236. (previously presented) The apparatus of claim 139, wherein said portion of said disc penetrating extension has a height less than the height of said passage.
237. (previously presented) A spinal instrument assembly, comprising:  
a central distractor having  
a distractor tip coupled to a shaft, said distractor tip having upper and lower distraction surfaces defining a distraction height therebetween to maintain distraction of a spinal disc space;  
a guide sleeve housing having a distal portion and a proximal portion, said guide sleeve housing defining a working channel in which said central distractor is centrally located, wherein said guide sleeve housing is positionable in an operative position with respect to the spinal disc space; and  
a guide sleeve having a distal end and a proximal end, said distal end of said guide sleeve removably engageable to said guide sleeve housing.
238. (previously presented) The instrument assembly of claim 237, wherein said central distractor is withdrawable from the spinal disc space and said guide sleeve housing when said guide sleeve housing is in said operative position.
239. (previously presented) The instrument assembly of claim 237, wherein:  
said guide sleeve has a first length extending proximally from said guide sleeve housing when engaged thereto;  
said guide sleeve housing has a second length extending proximally from the operative site; and  
a ratio of said first length to said second length is more than about 2:1.

Application No. 08/480,461  
Communication dated October 31, 2006

240. (previously presented) The instrument assembly of 239, wherein said ratio is less than about 10:1.
241. (previously presented) The apparatus of claim 236, wherein said at least one disc penetrating extension has a length that is less than the transverse width of the vertebral bodies, said length being greater than the depth of the spinal disc intermediate the two adjacent vertebral bodies between which said disc penetrating extension is inserted.

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OCT 31 2006